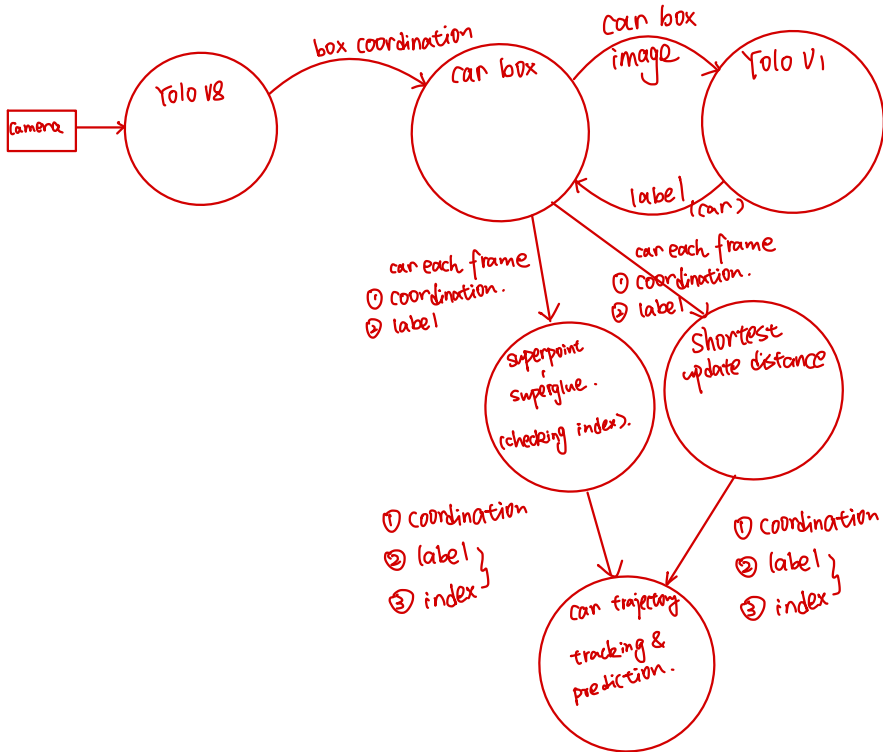
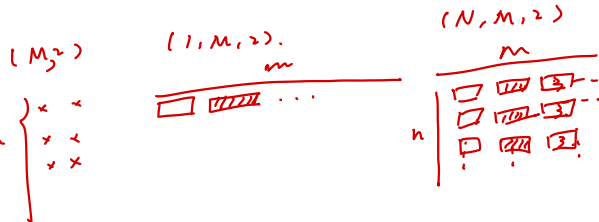
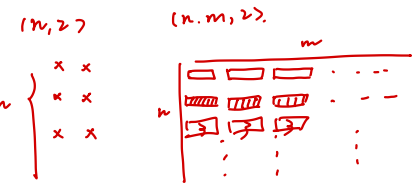
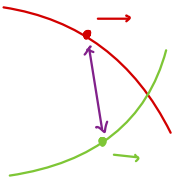
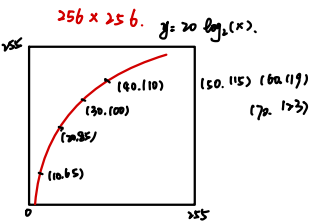
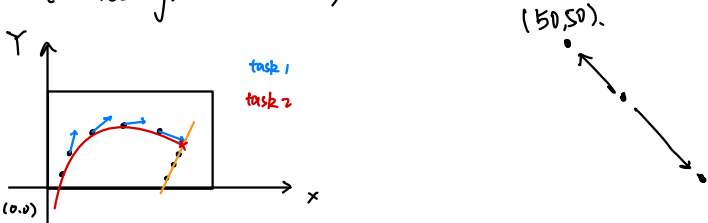
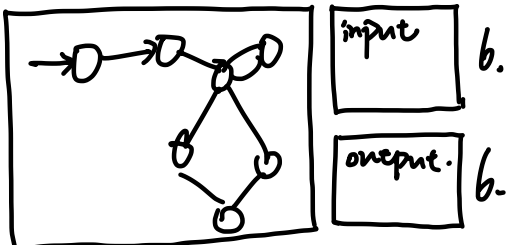


input : points.  $(x,y)$ .

↓  
generate images. with that point (pixel) be white.  
(a rectangle around it.)

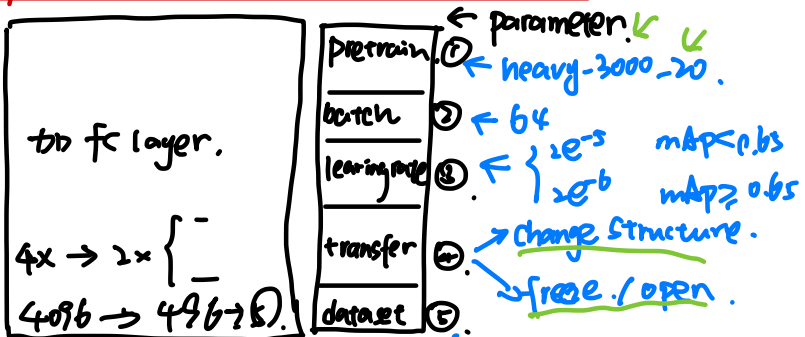


## Ros Node.

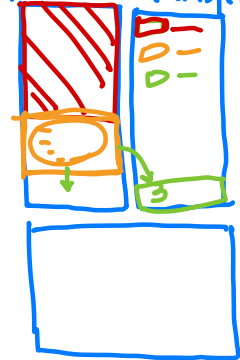


Explain how ros can work.

## CNN.

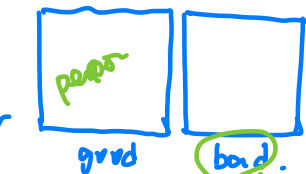


pretrain transfer.



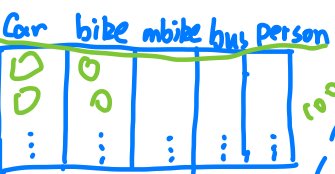
pretrain

- Dataset / labels (20).
- result.



transfer

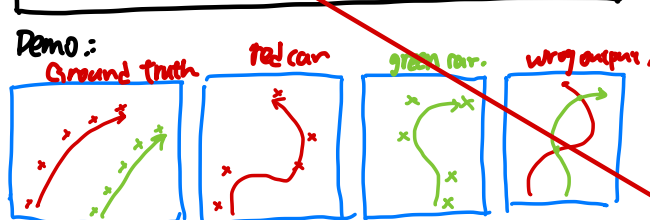
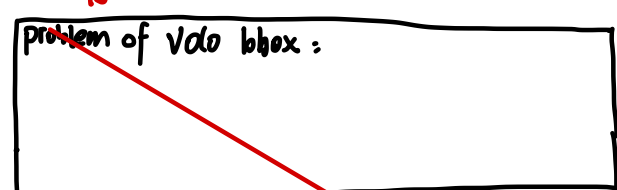
- Dataset / labels (5).



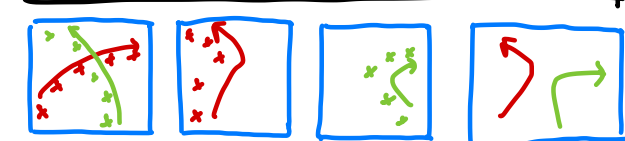
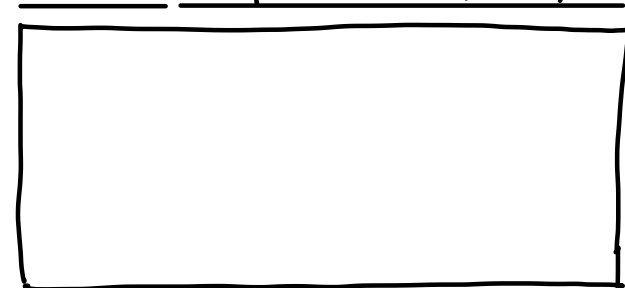
result



Identify each car.

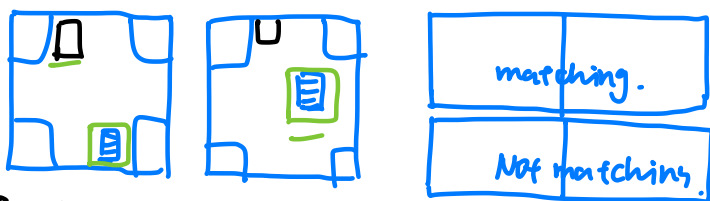


solution ①: Next frame nearest neighbor algorithm.



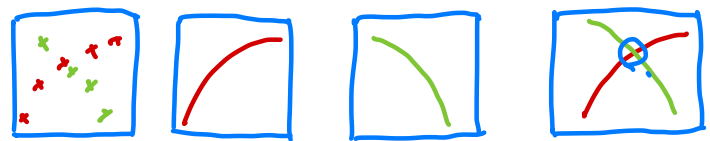
Solution ②: Super-point super-glue.

How can can use it.



finally solution: ① + ②.

Algorithm.



Tracking (before identify).

Tracking Algorithm (multiple cam).

input.  
output.

Velocity.

Algorithm.

trajectory prediction.

Algorithm.

Collision prediction.

Algorithm

FC (5016 -> 496).

FC (496 -> 1470).

Self. lookpyrelu = m.l

	Type	Filters	Size/Stride	Output
1×	Conv	64	$7 \times 7 / 2$	$224 \times 224$
	Max Pool		$2 \times 2 / 2$	$112 \times 112$
	Conv	192	$3 \times 3 / 1$	$112 \times 112$
	Max Pool		$2 \times 2 / 2$	$56 \times 56$
	Conv	128	$1 \times 1 / 1$	$56 \times 56$
	Conv	256	$3 \times 3 / 1$	$56 \times 56$
	Conv	256	$1 \times 1 / 1$	$56 \times 56$
	Conv	512	$3 \times 3 / 1$	$56 \times 56$
	Max Pool		$2 \times 2 / 2$	$28 \times 28$
4×	Conv	256	$1 \times 1 / 1$	$28 \times 28$
	Conv	512	$3 \times 3 / 1$	$28 \times 28$
	Conv	512	$1 \times 1 / 1$	$28 \times 28$
	Conv	1024	$3 \times 3 / 1$	$28 \times 28$
	Max Pool		$2 \times 2 / 2$	$14 \times 14$
2×	Conv	512	$1 \times 1 / 1$	$14 \times 14$
	Conv	1024	$3 \times 3 / 1$	$14 \times 14$
	Conv	1024	$3 \times 3 / 1$	$14 \times 14$
	Conv	1024	$3 \times 3 / 2$	$7 \times 7$
	Conv	1024	$3 \times 3 / 1$	$7 \times 7$
	Conv	1024	$3 \times 3 / 1$	$7 \times 7$
	FC		<del>4096</del> 496	4096 496
	Dropout 0.5			4096 496
	FC		$7 \times 7 \times 30$	$7 \times 7 \times 30$

